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ABSTRACT

This instructional handbook is one of a series of ten packets designed to form a comprehensive course in nutrition for secondary students. This unit examines the vegetarian diet as a viable alternative, and at the same time, it introduces the topics of protein and vitamin B12. It contains a page of teaching suggestions, a pre-test for the students, and factual nutrition information with examples of how this information can be used in daily living. A post-test and bibliography are included. (JD)

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NEW HORIZONS IN NUTRITION

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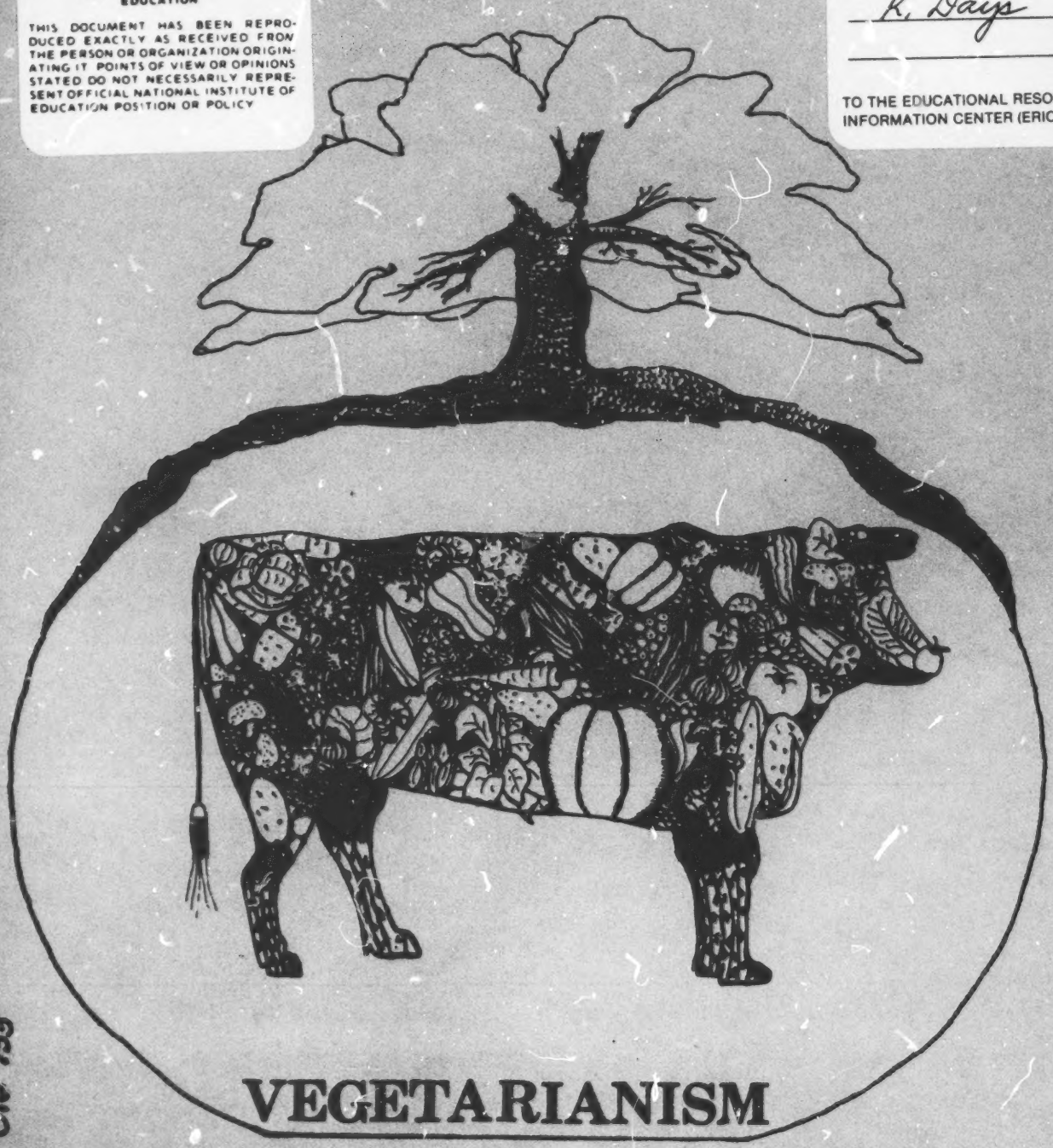

VEGETARIANISM

SP 014 753

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NEW HORIZONS IN NUTRITION

AN ISSUE ORIENTED APPROACH

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PROGRAM INTRODUCTION

These ten instructional packets are designed to help you make the science of nutrition a fascinating, relevant topic of study for your students. The study of nutrition is the most basic of all skills as eating is something done by every student every day of his or her life. With the intrinsic relationship between proper nutrition and good health, it is vitally important that we help students to make intelligent decisions with regard to what they eat.

The ten packets which make up New Horizons in Nutrition can be taken together to form a comprehensive course in nutrition for secondary students. If you prefer, individual packets can be used when they're relevant to specific topics in health, home economics, science, or social studies classes. In addition, you can use the materials with entire classes or individual students can be given the packets for self-directed study.

Each packet contains a page of teaching suggestions which can easily be detached before the rest of the booklet is given to the students. The materials for the students include a pre-test, a selection which provides the students with factual information and examples of how this information can be utilized in everyday life, and a post test. Reading the selections and completing the evaluation devices is not enough to insure mastery of the concepts. We urge you to reinforce the packets by following through with related classroom activities. You'll find suggestions in the "Notes to the Teacher" or use them as a springboard to develop activities more ideally suited to the needs of your students. Finally, brief bibliographies are provided with each packet which lists related readings and audiovisual materials.

These suggested materials are not meant to be used as a research bibliography. Rather, they are sources of additional information which are likely to be of interest to secondary students.

The topics of the ten packets are:

1. *Advertising*
2. *Back to Basics*
3. *The Emotional Aspects of Nutrition*
4. *Food Faddism*
5. *Low Carbohydrate Diets*
6. *Nutrition and the Athlete*
7. *Nutrition: Yesterday, Today, and Tommorrow*
8. *Social Issues in Nutrition*
9. *Vegetarianism*
10. *Vitamin C and the Common Cold*

We sincerely hope these packets help you to make nutrition education an alive, relevant, and exciting topic of study for you and your students. The benefits for everyone are well worth your effort.

The Authors

TEACHING NOTES

INTRODUCTION

In recent years, interest in vegetarian diets has greatly increased for a variety of reasons. This unit examines the vegetarian diet as a viable alternative; and at the same time, it introduces the topics of protein and vitamin B*12*.

OBJECTIVES

1. Students will identify the three types of vegetarian diets.
2. Students will list the functions and sources of protein and vitamin B*12*.

SUGGESTED ACTIVITIES

1. Students can develop a bulletin board display which illustrates a variety of complimentary proteins.
2. If possible, prepare a complete vegetarian meal and allow students to sample the foods. Follow up with a discussion of their reactions.
3. Develop a day's menu for a vegetarian and one representing a "typical" daily menu for an American high school student. Do a cost comparison for each menu.

PRE TEST KEY

1. F
2. F
3. T
4. T
5. T
6. T
7. T
8. F
9. F
10. F

POST TEST KEY

1. a) Lacto-ovo
   b) Lacto
   c) Strict
2. a) Grains
   b) Legumes
   c) Vegetables
   d) Fruits
3. T
4. T
5. T
6. T
7. T
8. T
9. T
10. T

T

T

BIBLIOGRAPHY

National Academy of Science. VEGETARIAN DIETS (Policy Statement)

National Lifestock and Meat Board. MEAT AND THE VEGETARIAN CONCEPT. (Pamphlet)

Polished Apple. VEGETARIANISM IN A NUTSHELL (Filmstrip and cassette)

Sussman, V. VEGETARIAN ALTERNATIVE Emmaus, Pa., Rodale Press, 1978.

PRE TEST

TRUE OR FALSE

1. _____ A good way to lose weight is to follow a vegetarian diet.
2. _____ A vegetarian is a food faddist.
3. _____ A strict vegetarian diet is low in Vitamin B12.
4. _____ It is possible to be healthy and to be a vegetarian.
5. _____ There are several different types of vegetarian diets.
6. _____ Vegetarians need more calories than non-vegetarians.
7. _____ Riboflavin and calcium are two nutrients that must be watched in the diet of the vegetarian.
8. _____ Plant foods are good source of complete protein.
9. _____ Meat is essential for an adequate diet.
10. _____ Vegetarianism is a new diet.

VEGETARIANISM

INTRODUCTION

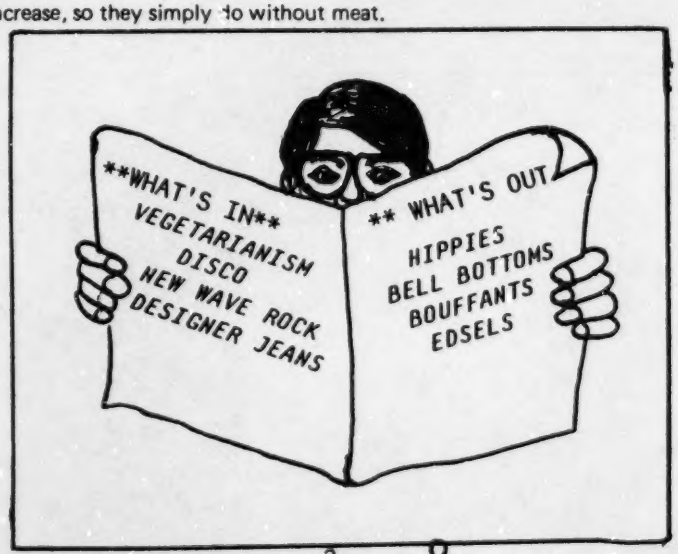
Vegetarianism is a very old diet. It has been with us for centuries. A check of history or literature will show that many people have followed such a diet.

One of the classic stories about vegetarianism was told by the novelist Leo Tolstoy. A Russian woman accepted an invitation to Tolstoy's home for dinner and found a live chicken tied to her chair. "My conscience forbids me to kill it", Tolstoy said. "As you are the only guest taking meat, I would be greatly obliged if you would undertake the killing first."

Tolstoy's reasons for not killing and eating animals were religious. Many people share this belief and thus follow a vegetarian diet. Today there is growing interest in vegetariansim. More and more people are beginning to accept and follow a vegetarian diet, and their reasons for doing so are varied.

In addition to religious beliefs, there are ecological factors and economic reasons to be considered. Those who are interested in ecology claim that it is morally wrong to eat meat, especially red meat when this will have an effect on the supply of grain. Eight pounds of grain are needed to supply one pound of beef. The amount of grain needed for other types of meat such as lamb, pork, etc., is slightly less to produce a pound. People who have strong ecological beliefs feel that this grain can be put to greater use. The grain can be used to feed the hungry people of the world.

Economics is another factor that deserves consideration. The cost of food is continually rising, and the price of meat is increasing at a fast pace. For many people this presents a problem. As more of the budget is allocated for meat, less is available for the other foods needed for a balanced diet. Some cannot afford this increase, so they simply do without meat.



Some individuals pick a vegetarian diet because they feel that it is a good way to lose weight. This is not true; also, this is not a valid reason for selecting a vegetarian diet. Vegetarians may lose weight because their diet is not planned correctly. A vegetarian with a nutritionally adequate diet should not lose weight.

DIFFERENT TYPES OF VEGETARIAN DIETS

All vegetarians do not follow the same diet. There are three different types of vegetarian diets:

1. **Lacto-ovo-vegetarian diet - this diet includes milk, cheese, eggs, and vegetables.**
2. **Lacto-vegetarian diet - this diet includes milk, cheese, vegetables, and grains.**
3. **The pure or the strict vegetarian diet - this diet is make up of vegetables, nuts, and grains.**

NUTRITIONAL ADEQUACY OF VEGETARIAN DIETS

Protein is the nutrient that we are concerned with in vegetarian diets. Proteins are regarded as the building blocks of the body. They are used to keep the tissues in good repair. Protein is found in every tissue of the body. It is found in the bones, hair, nails, etc. You cannot name a part of the body that does not contain protein. We need protein to keep the body working correctly.

AMINO ACIDS

Protein is make up of amino acids. There are twenty-two amino acids. These amino acids combine in many ways to make the protein found in the different parts of the body. Think of the alphabet. The twenty-six letters of the alphabet make up all the words we need. So, it is with protein. The twenty-two amino acids combine to give us all the body protein that we need.

Of these twenty-two amino acids, eight are regarded as essential. That means that the body cannot manufacture them, so they must be brought into the body through the food we eat. These eight essential amino acids are: ***isoleucine, leucine, lysine, methionine, phenylalanine, threonine, trypthophan,*** and ***valine.***

The essential amino acids are found in protein foods from an animal source, such as meat, poultry, fish, eggs, cheese and milk. These foods are called complete proteins, because they contain all of the eight essential amino acids.

Foods that do not contain all of the essential amino acids are called ***incomplete proteins.*** This type of protein is found in foods from a plant source, such as beans, peas, soybeans, peanuts, legumes, etc. By combining the different plant proteins, we can make a ***complete protein.*** For example, legumes

should always be served with grains: peanut butter sandwiches, Boston baked beans with brown bread, bread containing soy flour, beans and tortillas, refried beans and rice, beans and cornbread, bean soup and bread, and soybean salad with bread.

Another way to make a complete protein is to combine seeds with legumes, nuts or grains: rice and vegetables topped with sesame, sesame muffins, nutty banana bread, crunchy granola, sesame cookies, sesame tomatoes on rice, peanut butter cookies, and nuts and seeds used as snack.

The other fourteen amino acids are called nonessential. These can be manufactured by the body, so we do not worry about food supplying these amino acids.

Let us look at each one of the vegetarian diets and see if they are nutritionally adequate or protein balanced.

1. **Lacto-ovo-vegetarian diet is nutritionally adequate. The animal foods in the diet, such as milk, cheese, and eggs supply protein of good quality. So this balances the protein in the vegetables.**

2. **Lacto-vegetarian diet is also nutritionally adequate. The plant protein in this diet is balanced by the protein from the milk and the cheese, so protein of good quality is also available in this diet.**

3. **The strict vegetarian diet can be nutritionally adequate, but it must be very carefully planned. Plant proteins must be balanced so they become sources of good quality protein. A diet which gets 60 percent of its protein from grains, 35 percent from legumes, and 5 percent from leafy green vegetables will be adequately balanced as far as protein is concerned. Such a diet is made up of complimentary proteins. The term "vegan" refers to a person who follows a strict vegetarian diet.**

Legumes must be a stable in the vegan's diet. The Four Food Groups for the vegan are ***Grains, Legumes, Vegetables*** and ***Fruits.*** From these groups the vegan must be careful to select foods rich in the nutrients which are best supplied by milk, specifically calcium and riboflavin.

Grains should be the predominating food in this diet. Grain must supply 60 percent of the diet's protein. One cup of cooked beans has enough protein to supply the legume protein requirement for most people (35% of the protein). The vegan needs plenty of fresh dark green vegetables. Green vegetables supply riboflavin (a nutrient found in milk), calcium (another milk nutrient), and iron. Fruits will supply ascorbic acid and this is needed daily.

Vitamin B*12* is the nutrient that should concern the vegan. B*12* is not found in plant food; it is found only in food from animal sources. So B*12* must be supplemented. B*12* is needed for red blood cells. It may be added to soy milk and soy milk products, or the vegan may take a vitamin supplement.

Vegetarians need more calories than non-vegans. Protein from plant sources is not utilized as

efficiently as protein from animal sources. By increasing the caloric intake by approximately one-half, we make up for that difference between plant and animal protein. For example, an adult, who would normally require 2000 cal/day on a non-vegetarian diet, would require 3000 cal/day on a vegetarian diet.

BASIC DAILY DIET FOR THE TEEN-AGE BOY OR GIRL:

FOOD GROUPS	AMOUNT	KILOCALORIES	PROTEIN
Milk	3 cups	240	24 gm
Meat	2 servings	450	42 gm
Fruit/Vegetable	4 servings	130	4 gm
Bread/Cereal	4 servings	280	8 gm
		1100	

BALANCING PROTEIN FOR THE VEGAN:

FORMULA	TEEN-AGE BOY	TEEN-AGE GIRL
60% from Grains	32 gm	29 gm
35% from Legumes	20 gm	17 gm
5% from Leafy Greens	3 gm	2 gm
	55 gm	48 gm

BASIC DIET FOR THE TEEN-AGE VEGAN:

FOOD GROUPS	AMOUNT	KILOCALORIES	PROTEIN
Grains			
Bread	4 slices		
Grain	3-5 servings	968	33.0 gm
Nuts	1 serving		
Legumes:			
Soy Milk	3 cups	468	22.5 gm
Vegetables	4 servings	75	3.0 gm
Fruits	1-4 servings	160	
		1671	58.5 gm

This is the provision for the Basic Diet for both the vegan and the non-vegan. Other foods would have to be supplied to meet the energy needs of the body. The Basic Diets differ in the number of kilocalories they supply. The vegan requires almost 600 kilocalories more to receive all nutritive essentials from the basic diet. Additional foods are needed for both diets. These foods may be supplied by an increase in the servings of each of the Four Food Groups, and this will enhance the nutritional adequacy of the diet. The foods may come from other sources such as butter, margarine, salad dressing, syrups, sugars, etc. These will increase the kilocalorie intake, but not the nutritive value of the diet.

CONCLUSION

Now that you've learned something about nutrition, take time to consider why vegetarianism is

is becoming increasingly popular. Does it appeal to you? Maybe. In any case, as it is with everything you eat, carefully consider all sides of the issue. Ultimately the decision is yours alone.

CASE STUDY

FEELING THE ECONOMIC SQUEEZE

Joan Parkland is a young homemaker and mother of a three year old boy. She worked as a legal secretary until the birth of her son when she decided to devote herself full-time to being a mother. At first, the loss of her salary required the family to make minor sacrifices but her husband's income was adequate to cover all the necessities. But with inflation continuing to skyrocket, the situation changed drastically during the last year.

When Joan and her husband survey their financial situation, certain facts immediately become clear. Some bills, such as rent, utilities and payment on the car loan must be made each month. They have already cut back on luxuries such as eating dinner in restaurants and going to the movies. One area her husband suggests cutting back expenses is on their food bill.

Joan agrees this is one of the few places in the budget where further cuts could be made. While discussing specific ways to reduce costs, Joan remembers a conversation she had a few months ago with her friend, Patty, who is a vegetarian. Patty glowingly described the benefits of being a vegetarian and of the way food costs could be reduced. Patty has stopped eating all foods which in any way come from animals.

Joan decides that following a vegetarian diet may be the answer to her problem. She knows expenditures for meat take the biggest chunk of her food dollar, and she also believes that such a diet will help her to lose the fifteen pounds she's gained in the last few months.

If you were Joan's friend and she discussed her decision with you, how would you answer the following questions?

1. What type of a vegetarian is Joan's friend, Patty?
2. Will becoming a vegetarian help Joan to lose weight? Explain.
3. What additional information should Joan know before she starts planning vegetarian meals?
4. Joan should have any special concerns about meeting the nutritional needs of her young son. What are they?
5. Using related resources, check and see if Joan should have any special problems meeting her nutritional needs if she were to become a vegetarian and later to become pregnant with a second child.
6. Discuss the possible reactions of Joan's husband and son to the changes in their long accepted food habits.
7. If after considering the matter Joan decided to follow a vegetarian diet, what suggestions could you give her for satisfying the family's need for protein at a lower cost?

POST TEST

1 List the three types of vegetarian diets.

1)
2)
3)

2 What are the four food groups for the vegan?

1)
2)
3)
4)

TRUE OR FALSE

3. _____ A strict vegetarian must supplement vitamin B12 in the diet.

4. _____ 60% of the protein in the diet of the strict vegetarian should come from grains.

5. _____ The lacto-ovo-vegetarian diet includes milk, cheese eggs, and all vegetables.

6. _____ Plant proteins can be complimented to make a complete protein.

7 _____ It is possible to be healthy and to be a vegetarian.

8. _____ One cup of cooked beans contains enough protein to supply the legume protein requirement for one day.

9. _____ Grains predominate in the vegan's diet.

10._____ Grains, legumes and green leafy vegetables complete the protein requirements for the vegan.